

Supplementary Material

Characterization of Thin $MAPb(I_{1-x}Br_x)_3$ Alloy Halide Perovskite Films Prepared by Sequential Physical Vapor Deposition

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Supplementary Figures

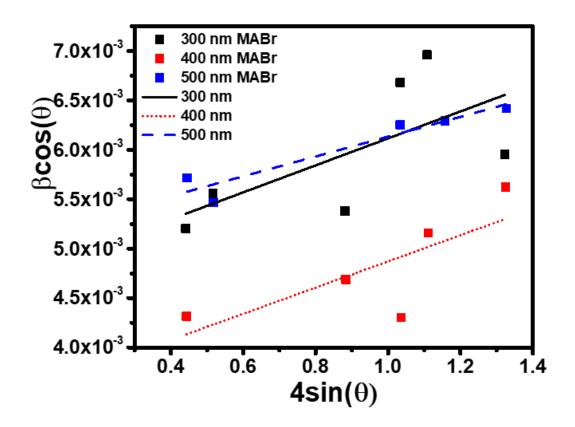


Figure S1. W-H plot of MAPb(I_{1-x}Br_x)₃ thin films for various MABr thicknesses.

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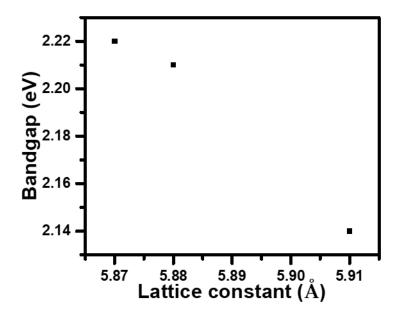


Figure S2. Bandgap of SPVD MAPb(I_{1-x}Br_x)₃ vs. lattice constant

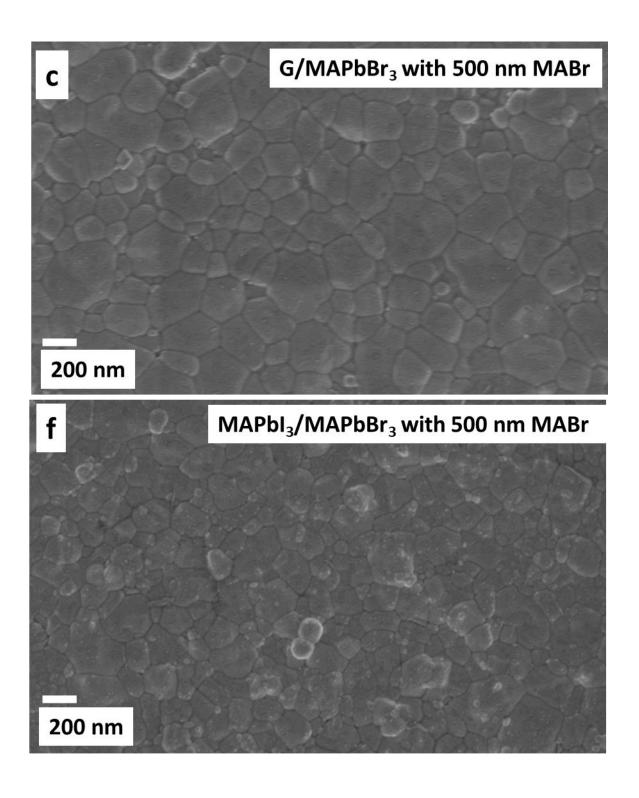
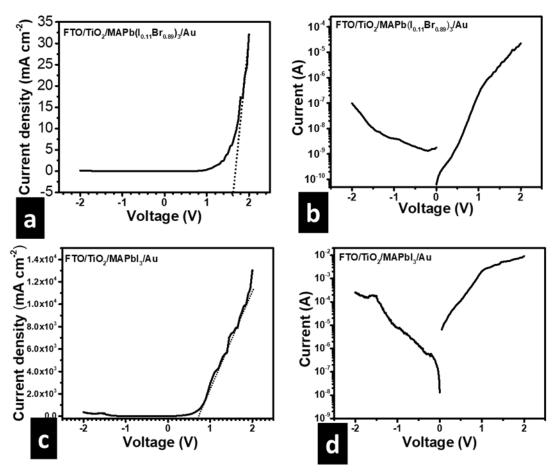


Figure S3. FE-SEM micrographs of (c) MAPbBr₃ and (f) MAPb(I_{0.05}Br_{0.95})₃ thin-films.



 $\label{eq:Figure S4.} \textbf{Figure S4.} (a) \ J-V \ plots \ for \ FTO/c-TiO_2/m-TiO_2/MAPb(I_{0.11}Br_{0.89})_3/Au, (b) \ Semi-log \ plots \ for \ FTO/c-TiO_2/m-TiO_2/MAPbI_3/Au \ solar \ cells, (d) \ Semi-log \ I-V \ plots \ for \ FTO/TiO_2/MAPbI_3/Au \ solar \ cells.$

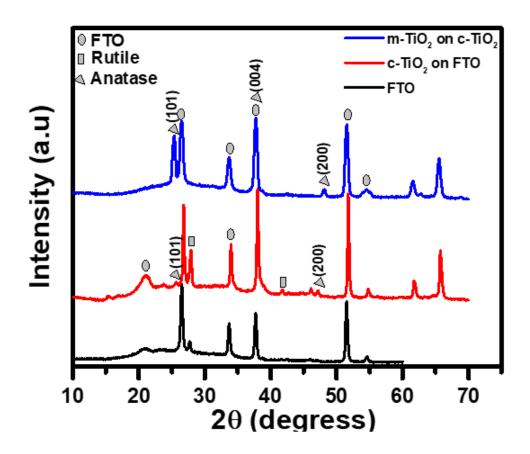
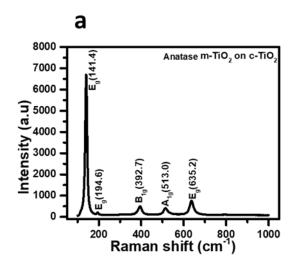


Figure S5: Diffractograms of c-TiO₂ and m-TiO₂



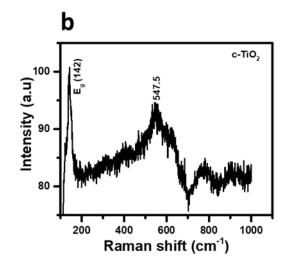


Figure S6: Raman of c-TiO₂ and m-TiO₂